

**Airmodels. “3D Aircraft Models Collection.” *Airmodels* , 2024, [airmodels.net/43-all](https://airmodels.net/43-all).**

This source provides a comprehensive library of 3D aircraft models, for me it has the Cessna 172 Skyhawk. I selected this source because it offers high-fidelity geometry that serves as a physical reference for both CAD modeling and 3D printing. In the early stages of a project, having access to pre-existing meshes allows for a better understanding of complex surface curvatures that are often difficult to interpret from 2D blueprints alone. I found this source useful because it categorizes models by type, making it easy to cross-reference specific aerodynamic features. However, one limitation of this source is that many models are optimized for visual rendering rather than precision. While they are excellent for aesthetic scaling, they may lack the internal structural data—such as spar placement or rib spacing—required for a true functional engineering "reverse-build." Despite this, it remains a top-tier visual benchmark for my CAD workflow.

**2. Dimensions.com. “Cessna 172 Skyhawk.” *Dimensions.com* , 2023, [www.dimensions.com/element/cessna-172-skyhawk-aircraft](https://www.dimensions.com/element/cessna-172-skyhawk-aircraft).**

This source provides detailed multi-view blueprints, including plan, profile, and section views, specifically for the Cessna 172 Skyhawk. I selected this source because accurate dimensioning is the bedrock of any CAD project; without these measurements, the resulting 3D model would lack real-world scalability. I found this source useful because it integrates both metric and imperial units, which is vital for maintaining accuracy when transitioning between different modeling software environments. The clear line art allows for easy "canvas" overlays in Fusion 360, enabling me to trace the fuselage with high fidelity. One limitation of this source is that it focuses primarily on the exterior envelope of the aircraft. It does not provide detailed schematics of the cockpit instrumentation or the engine bay, meaning supplementary sources are needed if those areas require high-detail modeling.

**3. Graham, H. “How to Model a Long EZ Airplane in Fusion 360/CAD.” *YouTube* , 2021, <https://www.youtube.com/watch?v=uh75xEECs5g>.**

This source is a video tutorial that demonstrates the end-to-end workflow for modeling a Burt Rutan-designed Long EZ aircraft. I selected this source because the Long EZ features a unique canard wing configuration, which presents specific challenges in surface lofting and weight-and-balance calculations. I found this source useful because it bridges the gap between static blueprints and active software manipulation, showing exactly how to handle complex wing-root transitions. Watching a professional navigate the timeline in Fusion 360 provides "soft skills" in CAD, such as how to organize a browser tree and when to use patches versus solids. One limitation of this source is the pace; as a "quick modeling" guide, it occasionally skips over the specific mathematical constraints used for the airfoils, requiring the viewer to have a baseline understanding of aerodynamic terminology to keep up.

**4. McGill University. “Principles of Dimensioning.” *Faculty of Engineering* , 2024,**

**[www.mcgill.ca/engineeringdesign/step-step-design-process/basics-graphics-communication/principles-dimensioning](http://www.mcgill.ca/engineeringdesign/step-step-design-process/basics-graphics-communication/principles-dimensioning).**

This source provides a pedagogical breakdown of the rules and standards governing engineering drawings. I selected this source because 3D modeling is only half of the design process; the ability to communicate those designs through formal blueprints is essential for any engineering-based poster or presentation. I found this source useful because it explains the "why" behind dimension placement, helping to avoid cluttered or redundant drawings that can confuse a manufacturer. It covers critical concepts like tolerance and leader lines which are standard in the industry. One limitation of this source is its academic tone; it is a theoretical guide rather than a "how-to" for specific software. While it teaches the principles of graphics communication, the user must still figure out how to toggle these specific settings within their chosen CAD suite to meet the described standards.

**5. NASA. “Images of Saturn V.” *NASA Image and Video Library* , 2025, [images.nasa.gov/search?q=Saturn%20V](https://images.nasa.gov/search?q=Saturn%20V).**

This source provides an extensive archival collection of high-resolution images, videos, and audio clips related to the Saturn V rocket. I selected this source because the Saturn V is an incredibly complex vehicle with thousands of small external components—like umbilical connections and RCS thrusters—that are often omitted in simplified blueprints. I found this source useful because the historical photography provides "real-world" textures and weathering details that are invaluable for creating a realistic poster or 3D render. Seeing the rocket in various stages of assembly helps in understanding the modularity of the stages. One limitation of this source is the sheer volume of data; searching through thousands of images to find a specific angle of the F-1 engine can be time-consuming. It requires a disciplined approach to curation to avoid "information overload" during the research phase.

**6. NASA. “NASA 3D Resources.” *NASA Science* , 2024, [science.nasa.gov/3d-resources/](https://science.nasa.gov/3d-resources/).**

This source provides a centralized repository of NASA's official 3D models, many of which are mirrored on GitHub for open-source access. I selected this source because it provides the most "authoritative" base models for spacecraft. Using an official NASA mesh ensures that the proportions of the craft—such as the Hubble Space Telescope or the Lunar Module—are verified by the agency that built them. I found this source useful because the models are available in multiple formats (.stl, .obj, .fbx), making them compatible with almost any 3D software. This versatility is crucial when moving between a 3D printer and a high-end rendering engine. One limitation of this source is that some of the models are "low-poly" for web-viewing purposes. This means that while the overall shape is correct, the surfaces may appear faceted and require "smoothing" or "re-topology" work before they are ready for high-resolution printing.

**7. NASA. "NASA's Super Guppy." *NASA Aircraft Operations* , 2023, [www.nasa.gov/specials/jsc-aircraft-ops/guppy.html](http://www.nasa.gov/specials/jsc-aircraft-ops/guppy.html).**

This source provides a detailed history and technical summary of the Aero Spacelines Super Guppy, a unique cargo aircraft used to transport oversized rocket components. I selected this source because the Guppy's unconventional fuselage shape offers a fantastic study in specialized aeronautical engineering. I found this source useful because it combines historical context with technical specifications, which adds a narrative layer to any educational poster. Knowing that the aircraft was built from a heavily modified Boeing Stratocruiser informs how I approach the modeling of the nose and tail sections. One limitation of this source is that it is more of a "feature story" than a technical manual. While it provides excellent reference images, it lacks the precise cross-sectional station data that a designer would need to perfectly replicate the bulbous cargo hold in a CAD environment.

**8. NASA. "X-59 3D Printing and Blueprints." *NASA STEM* , 2024, [www.nasa.gov/stem-content/x-59-3d-printing/](http://www.nasa.gov/stem-content/x-59-3d-printing/).**

This source provides specialized resources for the X-59 Quesst, NASA's experimental supersonic aircraft designed to reduce sonic booms. I selected this source because it bridges the gap between digital modeling and physical fabrication. I found this source useful because it specifically caters to 3D printing, offering files that have already been checked for manifold errors and "printability." For a student or designer, this serves as a masterclass in how to prepare a complex aerodynamic shape for a 1:100 scale physical model. The inclusion of educational blueprints makes it a dual-purpose resource for both drafting and manufacturing. One limitation of this source is that because the X-59 is a current, cutting-edge project, some of the internal "classified" specs are obviously omitted. The models focus strictly on the outer mold line (OML), which is perfect for external modeling but less so for internal structural study.

**9. RM Design. "How to Model an Aircraft in Fusion 360 | Tutorial 1." *YouTube* , 2020, <https://www.youtube.com/watch?v=fggnkmstLQ>.**

This source provides a multi-hour, step-by-step masterclass on the "setup" phase of aircraft modeling. I selected this source because many beginners fail at the start by not properly aligning their canvases; this video ensures the foundation of the 3D model is perfect. I found this source useful because it emphasizes the importance of "calibrating" images within Fusion 360. By ensuring that a 10-meter wing in a photo actually measures 10 meters in the software, the designer avoids scaling errors later in the process. This tutorial is particularly strong in its explanation of "spline" management, which is how you create the smooth, organic curves of a fuselage. One limitation of this source is its length. Because it is a "multi-hour" deep dive, it requires a significant time investment, which might be daunting for a user looking for a quick fix for a specific modeling problem.

**10. Wood, Graham. "Global State of the Art in Engineering Education."  
*Massachusetts Institute of Technology (MIT)* , 2018.**

This source provides a report on the current trends and best practices in engineering education. I chose this source as a framework for why my educational model. I found this source useful because it highlights the shift toward Project-Based Learning, where students learn by doing. Exactly what I'm doing in CTE Engineering, and students at SLA do as a whole. It validates the use of modern tools (like Fusion 360 and 3D printing) as essential components of an engineering toolkit. One limitation of this source is that it is a strategic report, not a guide. It will tell me what works, but it provides the necessary academic justification for the methodology used in this project, making it an excellent inclusion for the "educational summary" portion of my work.